Abraham Nofal

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Career Summary

Applying my knowledge of computer science to scientific research has led to my passion for secure software engineering and development, solutions architecture, and IT penetration testing, which I continue to improve upon my skills every day.

Education

M.S. Computational Neuroscience - *computer science focus*
University of Texas at Dallas, Richardson TX

- Summa Cum Laude
- Academic Excellence Honors Scholarship recipient.

Certifications:

- AWS Certified Cloud Practitioner
- LPIC-1, JPT

Professional Experience

Cellular and Synaptic Physiology Lab
Principal Investigator: Dr. Sven Kroener

- Analyzed the Effects of alcohol/alcohol addiction on the activity of the infralimbic region of the prefrontal cortex.
- Managed undergraduate students and developed Python and MATLAB scripts to aid experiments.
- Analyzed the effects of VNS on synaptic plasticity in the M-1 motor strip Behavioral analysis of DJ-1 gene knockout rats.

Computer Science I & II
Computer Architecture
Algorithm Analysis & Data Structures
Computer Networks
Operating Systems Concepts
C++ in a Unix environment
Database Systems
Software Engineering
Ethical Hacking & Penetration testing

Technical Skills:

Relevant Coursework:

Programming: Problem solving using C/C++, Java, Python, R, MATLAB, x86 assembly, algorithms and abstract data structures, recursive algorithms, DBMS (MongoDB, SQL, NoSQL, Postgre). Full stack Java. Git. Pandas.
Penetration testing: Kali linux toolset (Metasploit, Burp Suite, Nessus), reconnaissance, scanning, enumeration. Bash/Python scripting and socket programming, exploit development, and active directory attacks.
CTF: Skilled in Binary exploitation, reverse engineering, web exploitation, forensics, and cryptography.
Research: Application of programming skillset to scientific experiments of animal models.
Statistics: Data analysis and modeling using Microsoft SPSS, R, and MATLAB.
Languages: Fluent English and Arabic. Conversational Spanish.

Projects

- Rmarkdown/bookdown final cookbook in multivariate data analysis. Created a book using markdown, where each chapter of the book applied a different statistical analysis to a given data set. Analyses included PCA, CA, MCA, BADA, DiCA, PLSC/PLSR, DiSTATIS, and MFA.
- Built MATLAB tool to analyze movement of mice. Utilization of the image processing toolbox and computer vision toolbox to analyze each frame of open-field mouse behavioral recordings, counting the number of line crossings performed by the mouse, as well as total distance traveled.
- Construction of data structures and algorithms using Java generics from the ground up. Data structures included SLL & DLL, BST & AVL tree self-balancing, circular queue, postfix, infix, and expression tree conversion/evaluation, and graphs (PERT algorithm for DAG).
- Utilization of MIPS assembly language to perform merge sort, merge two ordered lists of integers, and to sum all even numbers less than or equal to a given user input. Strong knowledge of system calls and all I, J, and R-format instructions as well as CPU data paths, cache, and stack.
- HackTheBox Blue, Academy, Butler, and Blackpearl servers successfully penetrated via root escalation. Utilization of NMAP scanning, DIRB, EternalBlue and various port vulnerability exploits.

Publications

Patrick R. Melugin, Fei Wu, Crystal Munoz, Aarron Phensy, Grishma Pradhan, Yi Luo, Abraham Nofal, Rohan Manepalli, Sven Kroener, The effects of acamprosate on prefrontal cortical function are mimicked by CaCl2 and they are influenced by the history of alcohol exposure, Neuropharmacology, 2022, 109062, ISSN 0028-3908